

H.A

Notice of Allowability

Application No.

10/719,210

Examiner

Que T. Le

Applicant(s)

WASSERMAN ET AL.

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☐ This communication is responsive to _____.
2. ☒ The allowed claim(s) is/are 1-48.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.


THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____


Que T. Le
Primary Examiner

The following is an examiner's statement of reasons for allowance: The prior art fails to teach a method for operating a precision machine vision inspection system to determine an estimated best focus position usable for inspecting a region of interest of a workpiece, including an imaging system having a camera providing pixel values of at least one configuration of a reduced readout pixel set corresponding to substantially less than a full field of view of the camera along at least one dimension, a plurality of controllable motion axes including a focus axis with a focus axis position sensor, a workpiece stage, wherein at least one of the stage and the imaging system is movable to provide relative motion with respect to the other at least along the focus axis, comprising: overlapping at least a majority of the region of interest and at least part of the reduced pixel set; providing a motion including traversing a focus image range along the focus axis direction using continuous motion; inputting an auto focus image of a respective effective exposure time and exposure duration into the camera during the continuous motion; outputting the pixel values to a control system portion during the continuous motion; repeating the inputting and outputting steps; determining respective positions along the focus axis for at least some of the plurality of auto focus images; and determining an estimate best focus position. The prior art also fails to teach a method of training mode operation for a precision machine vision inspection system including the features stated above and further including the steps of defining a set of auto focus parameters usable to determine a set of auto focus operations for the region of interest having a run mode focus image range, a run mode auto focus motion, a run mode

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illumination level and exposure duration usable; providing operations to determine a repetitive inputting of respective auto focus image and outputting of respective data for a plurality of reduced readout pixel sets; providing operations to determine respective positions along the focus axis; and providing operations to determine the estimated best focus position.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

1) Ortyn et al 5,892,218 disclose an automated method for checking system autofocus integrity includes a plus focus camera.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Que T. Le whose telephone number is (571) 272-2438.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta, can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

A handwritten signature in black ink, appearing to read 'Que T. Le'.

Que T. Le

Primary Examiner